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Demographic Analysis of Chinese Gamblers' Perceptions of E-marketing Mix Elements Adopted by Online Casinos

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Abstract—The Internet explosion has revolutionized numerous industries, making online shopping and auctions into profitable business sectors. An increasingly important market sector is the casino industry. The profile and popularity of gambling on an internet casino is evolving rapidly, with the online gambling business seeing significant growth in Europe, Asia and South America. In China, there are twice as many online gamblers as there are Internet shoppers. In this study, the Chinese gamblers' perceptions of e-marketing mix elements offered by online casinos will be analyzed. The purpose is : i) to investigate the popular e-marketing tools supported by existing online casinos; ii) to evaluate the demographic effect on Chinese gamblers' perceptions of e-marketing mix elements. The results can provide a market reference for investors in online casinos.

Index Terms—e-marketing, demographic analysis, online casinos, internet gambling, e-marketing mix models

I. INTRODUCTION

Gambling is the investment of money on an event with the primary intent of winning additional money through luck. It is also a major international commercial activity, with the legal gambling market totaling an estimated \$335 billion in 2009 [1]. So, what makes gambling so popular? Although people will not reject a decent-paying job, they would gladly prefer to gamble rather than working in paid employment. It is the lure of instance riches that makes gambling such a popular activity; therefore, gambling is prohibited in many countries. However, there are still some countries or cities that consider gambling a legal and legitimate business but nevertheless they control it heavily by licensing. Legal gambling provides significant government revenues through taxation. A survey [2] claimed that rising income levels in the middle class with a growing trend towards increased numbers of women in the workplace is a driving factor for the casino and gaming industry in the Asia-Pacific region. The survey [2] also noted that there

is strong potential in the Asia-Pacific region, with Macau outstripping expectations in its revenue growth. Macau's economic growth has increased considerably since the government ended a four-decade monopoly in 2002 and allowed in foreign gambling operators. In 2013, the Casino revenues in Macau surged to US\$45 billion, surpassing Las Vegas in terms of overall gaming revenue [3].

A. Emergence of Online Casino Gambling

Due to the emergence of the Internet, the popularity of gambling has also moved to online gambling. Online gambling fits the changing leisure patterns of households. Furthermore, the threshold for gambling is significantly lower compared to real casinos because of access, affordability, anonymity and convenience.

Online gambling has been very popular in Europe, the global leader in the online gambling industry. There was an 18.21% compound annual growth rate (CAGR) globally over the period 2002 – 2010 [2]. The United Kingdom was the first country to legalize and regulate online casino gambling. According to the 2010 British Gambling Prevalence Survey [4], 14% of adults placed their bets online. Between April 2012 and March 2013, online casinos in the United Kingdom turned over 863 million pounds [5]. In Belgium, more than 40,000 Belgians gamble online weekly.

Although online casino gambling has not been legalized in Asian countries, the industry is receiving much attention recently, e.g. Dynam Japan Holdings Co Ltd has ambitions to work with a partner to develop online games in Macau, provided that such games comply with all the applicable laws and regulations of Macau [6]. Since the substantial increase in Macau casino revenues has been driven by Chinese gamblers from Mainland China [7], which has the highest population in the world, Macau has the potential to be one of the main online casino markets, if online casino gambling is legalized there. In this study, the Chinese gamblers' perceptions of online casinos will be analyzed. The purpose is i) to investigate the popular e-marketing tools

supported by existing online casinos; ii) to understand the perceptions of online gamblers relating to the e-marketing tools available on online casinos. The research results can help online casinos generate more revenues.

B. E-Marketing Mix Models

Since e-commerce became popular, many new marketing mix models have been developed to replace the 4P model in the digital marketplace including the 4Cs model [8], 4S model [9] and 4Ps + P²C²S³ model [10].

The web-marketing mix 4S model [9] is based on the organization's viewpoint in addition to the consumers' viewpoint. This requires the identification of strategic objectives, classification of the potential competitors and customers of the site, assessment of the degree of readiness of the company for e-commerce, or recognition of the co-operation with other Internet partners outside the organization. This expensive investment is not required for the system reported herein.

The 4Cs model [8] is a customer-oriented marketing mix model, which is quite relevant to this research. However, one of the 4Cs: satisfying consumer's costs, does not only concern price, which may be one of the most important factors in a consumers' purchasing decision. For the other Cs, they mainly focus on developing relationships with consumers.

1) E-Marketing Mix – 4Ps+P²C²S³ Model

Van Waterschoot and Van den Bulte [11] pointed out that the components of “communication” address “barriers to wanting”, whereas the sales promotion function addresses “barriers to acting”. They observed that “triggers to customer action” seem necessary in certain situations to induce the exchange. Hence, they termed sales promotion a “situational” function. In addition, they pointed out that the marketing functions are accomplished by marketing tools.

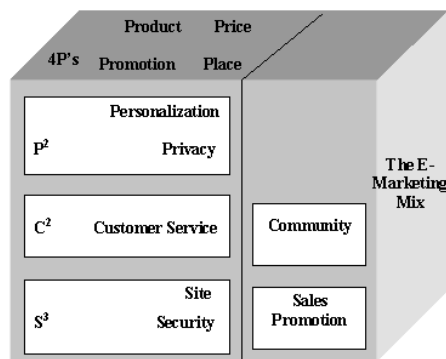


Figure 1. E-marketing mix model: 4Ps + P²C²S³ [5]

Based on the axioms developed by Van Waterschoot and Van den Bulte; Kalyanam & McIntyre [10] created a new E-marketing mix 4Ps+P²C²S³ model as illustrated in Fig. 1. The model consists of i) more components than the 4Ps model in order to reflect the e-commerce environment and ii) e-marketing tools, which can influence consumer retention on the Internet [12] and play an important role in the formation of an effective e-marketing strategy [10], [13], mapped into each component.

In the 4Ps+P²C²S³ model, there are some customer-oriented e-marketing tools such as i) product configuration engine, ii) product image viewing tools, iii) online product discussions among consumers and iv) security techniques, etc. The e-marketing tools are categorized into their corresponding e-marketing mix elements.

If online casinos can evaluate the effectiveness of their e-marketing mix elements accurately, it can certainly increase sales revenues. This study investigates online gamblers' perceptions about the e-marketing mix provided by online casinos in order to facilitate the online betting services. The purpose herein is to evaluate the importance of each e-marketing mix element offered by online casino web sites. The adopted e-marketing mix model should be based on the online gamblers' viewpoint. Based on the comparisons with other e-marketing mix models, the 4Ps + P²C²S³ model is the most suitable one for this research.

The remainder of this paper is structured as follows. Section 2 describes the research methodology for the analysis of the e-marketing tools and their corresponding e-marketing mix elements in online casinos. Section 3 discusses the results and provides conclusions.

II. RESEARCH METHODOLOGY

This study focuses on i) analyzing the e-marketing tools offered by online casinos and determining if they can match Chinese gamblers' expectations; and ii) analyzing the demographic effect on Chinese gamblers' perceptions of e-marketing tools offered by online casinos.

A. Analysis of the E-Marketing Tools in Online Casinos

TABLE I. DEMOGRAPHICS OF THE RESPONDENTS

Demographics	Number	Percent
Gender		
Female	316	45.3
Male	381	54.7
Age		
35 or below	376	53.9
36 – 50	258	37.0
51 – 65	63	9.0
Income Level (Monthly)		
0	94	13.5
Below MOP18,000	359	51.5
MOP18,000 – 45,000	199	28.6
Above MOP45,000	45	6.4

As mentioned in Section 1, the 4Ps + P²C²S³ model includes several customer-oriented e-marketing tools. However, there are three e-marketing tools (forward auctions, reverse auctions and wish-list) omitted from the 4Ps + P²C²S³ model as they are not relevant in the online casino environment. The e-marketing tools were converted to the survey items of two surveys. For the first

survey, Survey 1, the data was obtained from 108 randomly chosen online casinos, which could be accessed through different online search engines. The purpose is to understand the current trends of e-marketing tools offered by online casinos. For the second survey, Survey 2, the same e-marketing tools were used as survey items. The target of this study is gamblers in Macau and the

questionnaire was distributed to the gamblers at different casinos in Macau. The purpose is to understand the online gamblers' perceptions of e-marketing tools adopted by the online casinos. On this basis, a sample of 697 usable responses was gathered from diverse respondents with different demographic characteristics. Descriptive statistics related to the sample are presented in Table I.

TABLE II. PERCENTAGE OF ONLINE CASINOS ADOPTING DIFFERENT E-MARKETING TOOLS AND THE PERCENTAGE OF CHINESE GAMBLERS RANKING IMPORTANCE OF DIFFERENT E-MARKETING TOOLS

Constructs		E-Marketing tools	% of online casinos	% of Chinese gamblers	
				High/Very high Importance	Low/Very low Importance
Product	PR1	Different categories of online casino games available such as Blackjack and Baccarat, etc.	95%	63.6%	12.8%
	PR2	Configuration tools for the online casino game options	90%	58.1%	11.3
	PR3	Guidelines of betting game and demonstration video	5%	53.8%	20.8
Promotion	PM1	Online advertisement	100%	29.9%	40.6%
	PM2	Newsletter e-mail sent to me	100%	33.8%	39.9%
	PM3	The online casino contains messages or video clips about some betting games that are so attractive that I will inform others about that.	0%	44.6%	25%
	PM4	Suggestions regarding complementary items for my betting game product interest	4%	42.2%	22.4%
Place	PL1	The link of the online casino can be accessed from other well-known web sites	100%	59.4%	17.4%
	PL2	The games of online casinos can be available through search engines	100%	61.8%	13%
Price	PC1	The minimum and maximum bet in the online casino can be changed in response to changing supply and demand conditions	25%	71.0%	10.7%
	PC2	I can enter my target minimum and maximum bet so that the online casino can list out suitable betting games	0%	69.6%	9.5%
Personalization	PZ1	When I return to the online casino, it can show all those betting games that I visited before	60%	48.2%	22.5%
	PZ2	When I log on to the online casino, it will send notice to me about new games based on my interest.	45%	50.4%	16.9%
	PZ3	Based on my gaming interest, there are some suggested games already used by those customers who have the same interest.	0%	51.9%	16.1%
Privacy	PV1	Messages about privacy such as "we will not sell your personal data..."	100%	81.3%	7.1%
Customer Service	CS1	Frequently asked questions / Help page	100%	61.7%	11.8%
	CS2	Quick response from e-mail enquiry	100%	49.1%	16%
	CS3	Chat rooms between online gamblers and supporting staff	80%	43.2%	20.6%
	CS4	Tracking status of the expenditure amount between online casino and bank account	0%	82.8%	6.2%
	CS5	Bet return policy	100%	77.6%	8.3%
Community	CM1	Chat rooms available for customers to discuss different online casino games.	15%	40.5%	25.1%
	CM2	User rating and review at the online casino	0%	49.1%	22.2%
Site	ST1	The homepage of online casino defines its features and the categories of online casino games clearly.	90%	56.1%	13.3%
	ST2	The contents of the online casino should be well organized and the background format is matched with the text style and color.	85%	52.5%	16.9%
	ST3	Tool that can allow me to search my suitable betting games easily in the online casino.	0%	62.4%	11.6%
Security	SC1	Security techniques such as data encryption and secure socket layer (SSL)	100%	83.8%	5.8%
Sales Promotion	SP1	Electronic coupon offered by the online casino	100%	52.2%	20.2%

Each item was measured on a scale from one to five, starting from “very important” to “very unimportant”. Table II shows the comparisons between the percentage of online casinos adopting different e-marketing tools and the percentage of gamblers ranking high importance of different e-marketing tools.

The following facts were distilled from Table II and should be addressed by managers so that the online casinos can attract more online gamblers and earn greater revenues:

- In most of the online casinos, the minimum and maximum bet cannot be changed in response to changing supply and demand conditions, nevertheless a high percentage (71%) of Chinese gamblers believe that this is important to them.
- Only 5% of online casinos provide demonstration videos to online gamblers, while more than half of the Chinese gamblers (54%) regard it as important.
- There are no attractive messages or video clips on any online casinos while nearly half of the Chinese gamblers (45%) think that it is important.
- There are not any online casinos providing searching tools allowing online gamblers to specify a target minimum and maximum bet to find out suitable betting games. However, 70% of the Chinese gamblers think it is important.
- Suggestions about other interesting games are also important to more than half of the Chinese gamblers but none of the online casinos provide such a facility.
- The majority of Chinese gamblers (83%) think that tracking the expenditure status between online casinos and bank accounts is important to them; however, there are not any online casinos providing such a facility.
- The user rating and review of online casino games is important to nearly half of the Chinese gamblers (49%) while it is not available in online casinos.
- There are not any searching tools allowing online gamblers to search for suitable games in online casinos; however, over half of the Chinese gamblers (62%) think such facility is important.

B. Chinese Gamblers' Perceptions of E-Marketing Tools

A proposed research model is shown in Fig. 2.

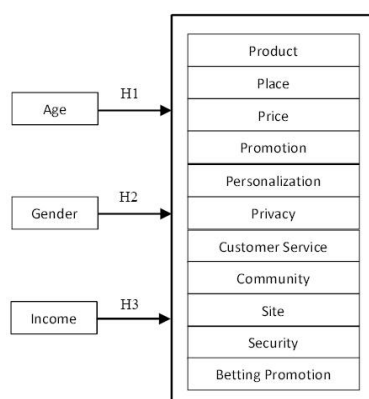


Figure 2. Research model.

1) Gender

During the last ten years, an increased number of females have been gambling online [14]-[16]. Many gambling advertisements on UK television specifically focus on bingo and on encouraging women to gamble online [17]. The results found that females were more influenced by gambling advertisements than males, in terms of their motivation to gamble in the first place and also for choosing a gambling website because of an advertisement. As a result, the following hypothesis is proposed:

H1: There is a significant difference in Chinese gamblers' perceptions about the importance of e-marketing mix elements between male and female Chinese gamblers.

2) Age

Age can play an important role in adopting and using information technologies [18]-[21]. With respect to online gambling, McBride & Derevensky found that participation decreased significantly as age increased [22]. Hence, the following hypothesis is proposed:

H2: There is a significant difference in Chinese gamblers' perceptions about the importance of e-marketing mix elements between young and more mature Chinese gamblers.

3) Income

The rate of Internet gambling is higher among people who earn above average incomes [21]. According to Vong [23], there was a difference in gaming impact perceptions among Macau residents with increased income and without increased income within the last five years. Hence, the following hypothesis is proposed:

H3: There is a significant difference in Chinese gamblers' perceptions about the importance of e-marketing mix elements between Chinese gamblers of low and high income.

4) Data analysis

In order to investigate the measurement model based on the data from Survey II, there are two stages to follow. The first stage is exploratory factor analysis (EFA) applied to group correlated measures under the same factor. Results regarding EFA are demonstrated in Table III together with internal consistency (α) and factor loading values. According to factor loadings, it was found that most of the survey items are appropriate measures for their corresponding constructs except the item CS5 has been shifted to the construct betting promotion and renamed as BP2. Additionally, Cronbach's alpha (i.e. reliability) values of all the variables were higher than 0.70. This demonstrates that the internal consistency of the survey data is acceptable and reliable according to George and Mallery [24]. Based on Table III, the relative weight of each item (e-marketing tool) is computed according to the ratio of each item's factor loading to the sum of the absolute factor loadings of all items relative to their associated factors, respectively [25], [26]. Suppose there are n e-marketing tools inside an e-marketing mix element e . The formula for measuring the score of the e-marketing mix element is given in (1):

$$CS_e = \sum_{j=1}^n RW_{ej} \cdot X_{ej} \quad (1)$$

where CS_e is the composite score of an e-marketing mix

element e and RW_{ej} is the relative weight of the j^{th} e-marketing tool with respect to a particular e-marketing mix element e . X_{ej} is the item score of the j^{th} e-marketing tool with respect to a particular e-marketing mix element e .

TABLE III. FACTOR LOADINGS OF MEASUREMENT ITEMS

Construct	Measurement items	Loading
Product = 0.743	PR1	0.539
	PR2	0.611
	PR3	0.563
Promotion = 0.711	PM1	0.697
	PM2	0.721
	PM3	0.544
	PM4	0.645
Place = 0.726	PL1	0.544
	PL2	0.67
Price = 0.819	PC1	0.708
	PC2	0.683
Personalization = 0.827	PZ1	0.529
	PZ2	0.802
	PZ3	0.845
Privacy	PV1	0.433
Customer Service = 0.792	CS1	0.704
	CS2	0.791
	CS3	0.727
	CS4	0.48
Community = 0.788	CM1	0.744
	CM2	0.69
Site = 0.730	ST1	0.565
	ST2	0.701
	ST3	0.716
Security	SC1	0.496
Betting Promotion = 0.716	BP1	0.768
	BP2	0.593

TABLE IV. A. RESULTS OF T-TESTS

Demo-graphics	Product	Promotion	Price	Place	Personalization
Gender	t-value: -1.23	t-value: 0.856	t-value: -0.723	t-value: 0.419	t-value: -0.08
	p-value: 0.219	p-value: 0.392	p-value: 0.470	p-value: 0.675	p-value: 0.937
	H1a not supported	H1b not supported	H1c not supported	H1d not supported	H1e not supported
Age	t-value: 0.504	t-value: 1.285	t-value: -0.897	t-value: 0.303	t-value: 0.617
	p-value: 0.614	p-value: 0.199	p-value: 0.37	p-value: 0.762	p-value: 0.538
	H2a not supported	H2b not supported	H2c not supported	H2d not supported	H2e not supported
Income	t-value: -1.669	t-value: -1.689	t-value: -2.118	t-value: -1.777	t-value: -1.791
	p-value: 0.096	p-value: 0.092	p-value: 0.035	p-value: 0.076	p-value: 0.074
	H3a not supported	H3b not supported	H3c supported	H3d not supported	H3e not supported

At the second stage, several rounds of t-tests were performed using SPSS to evaluate the existence of significant differences in Chinese gamblers' perceptions about the importance of different online e-marketing mix

elements between male and female gamblers, between young and mature gamblers and between gamblers of low and high income. The results are shown in Table IV.

TABLE V. B. RESULTS OF T-TESTS

Demo-graphics	Privacy	Customer Service	Site	Community	Security	Betting Promotion
Gender	t-value: 0.051	t-value: 0.376	t-value: -1.97	t-value: 0.148	t-value: -1.202	t-value: -1.182
	p-value: 0.959	p-value: .707	p-value: 0.042	p-value: 0.883	p-value: 0.23	p-value: 0.238
	H1f not supported	H1g not supported	H1h supported	H1i not supported	H1j not supported	H1k not supported
Age	t-value: -0.449	t-value: 3.084	t-value: 0.586	t-value: 1.488	t-value: -1.947	t-value: 2.246
	p-value: 0.653	p-value: 0.002	p-value: 0.558	p-value: 0.137	p-value: 0.047	p-value: 0.025
	H2f not supported	H2g supported	H2h not supported	H2i not supported	H2j supported	H2k supported
Income	t-value: 1.98	t-value: 0.834	t-value: 0.332	t-value: -2.112	t-value: -2.05	t-value: 0.588
	p-value: 0.048	p-value: 0.404	p-value: 0.740	p-value: 0.035	p-value: 0.041	p-value: 0.557
	H3f supported	H3g not supported	H3h not supported	H3i supported	H3j supported	H3k not supported

III. DISCUSSION OF RESULTS

In this study, the results indicate that the some of the e-marketing tools are not addressed by online casinos, while the gamblers would pay a significant amount of attention to them if they were available. These tools include i) automatic updates of minimum and maximum bet in response to changing supply and demand conditions, ii) demonstration videos about online betting games, iii) attractive messages or video clips about online betting games, iv) searching tool allowing online gamblers to enter their target minimum and maximum bet to find out suitable betting games, v) suggestions about other interested betting games, vi) tracking expenditure status between the online casinos and bank accounts, vii) user rating and review of online betting games; and viii) searching tools allowing online gamblers to search for suitable games in online casinos. In addition, this study utilized the demographic dimensions of age, gender and income level as the external variables; the results indicate there is a significant difference in Chinese gamblers' perceptions about the importance of the following e-marketing mix elements: Price, Privacy, Community and Security especially between Chinese gamblers of low and high income. There is also a significant difference in Chinese gamblers' perceptions about the importance of the following e-marketing mix elements: Customer service, Security and Betting promotion between young and mature Chinese gamblers. Finally, Chinese male and female gamblers have significantly different perceptions about the importance of Site e-marketing mix element only.

IV. CONCLUSION

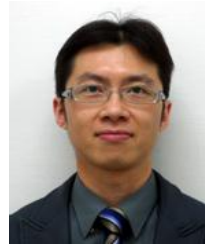
The aim of this study was to analyze Macau gamblers' perceptions of the e-marketing mix elements in online casinos. At the beginning of this study, the e-marketing tools offered by online casinos were analyzed and the

results showed that some of the e-marketing tools could be improved by managers in order to increase their revenues by attracting more online gamblers. Specifically, this study utilized the demographic dimensions of age, gender and income level as the external variables; the results indicate that these external variables had different levels of influence on Chinese gamblers' perceptions of the e-marketing mix elements offered in online casinos, with income having the highest influence (Price, Privacy, Community and Security elements) compared to the other two variables; namely age (Customer service, security and Betting promotion elements) and gender (Site element). From this initial research, casino owners/managers can develop better e-marketing plans by incorporating the identified e-marketing mix elements.

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